### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 7 July 2005 (07.07.2005)

**PCT** 

## (10) International Publication Number WO 2005/061896 A2

(51) International Patent Classification7:

F04C

(21) International Application Number:

PCT/GB2004/005407

(22) International Filing Date:

23 December 2004 (23.12.2004)

(25) Filing Language:

**English** 

(26) Publication Language:

English

(30) Priority Data: 0329839.5

23 December 2003 (23.12.2003)

(71) Applicant (for all designated States except US): THE BOC GROUP PLC [GB/GB]; Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LIU, Michael,

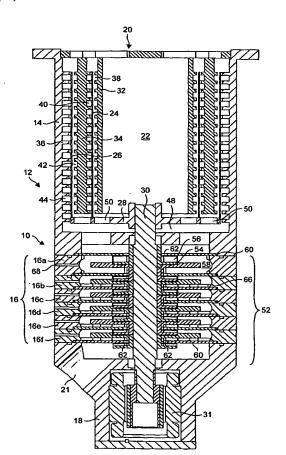
Kau [GB/GB]; c/o BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB). DOWDESWELL, Stephen [GB/GB]; c/o BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB). SCHOFIELD, Nigel, Paul [GB/GB]; c/o BOC Edwards, York Road, Burgess Hill, West Sussex RH15 9TT (GB).

(74) Agent: BOOTH, Andrew, Steven; The BOC Group plc, Chertsey Road, Windlesham, Surrey GU20 6HJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: VACUUM PUMP



(57) Abstract: A vacuum pumping arrangement is described for evacuating a load lock chamber. A booster pump comprises a molecular drag stage and a multi-stage centrifugal compressor mechanism. A backing pump comprises a multi-stage centrifugal compressor mechanism exhausting pumped fluid at atmospheric pressure. Such arrangements can reduce noise, size and vibration levels associated with conventional load lock pumping arrangements.

# WO 2005/061896 A2



(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.